

IPR AFB

TRANSMITTAL OF APPEAL BRIEF (Large Entity)					Docket No. K06-167785M/TB	
In Re Application Of: Jun Hamaki						
Application No. 10/796,301	Filing Date March 10, 2004	Examiner Marc A. Scharich	Customer No. 21254	Group Art Unit 3611	Confirmation No. 9114	
Invention: ELECTRIC POWER STEERING DEVICE						

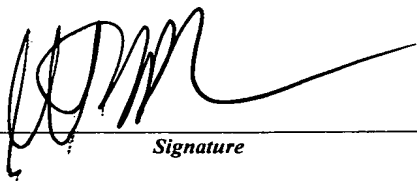
COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:
August 18, 2008

The fee for filing this Appeal Brief is: **\$540.00**

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **50-0481** I have enclosed a duplicate copy of this sheet.
- ☐ Payment by credit card. Form PTO-2038 is attached.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.



Signature

Scott M. Tulino, Esq.
Registration No. 48,317
Sean M. McGinn, Esq.
Registration No. 34,386

Dated: **October 20, 2008**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on

(Date)

Signature of Person Mailing Correspondence

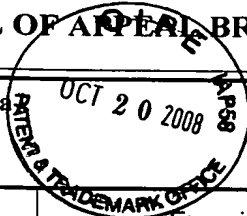
Typed or Printed Name of Person Mailing Correspondence

CC:

TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
K06-167785M/TB

In Re Application Of: Jun Hamakita



Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/796,301	March 10, 2004	Marc A. Scharich	21254	3611	9114

Invention: **ELECTRIC POWER STEERING DEVICE**


COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:
August 18, 2008

The fee for filing this Appeal Brief is: **\$540.00**

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 50-0481. I have enclosed a duplicate copy of this sheet.
- ☐ Payment by credit card. Form PTO-2038 is attached.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.


Signature

Dated: **October 20, 2008**

Scott M. Tulino, Esq.
Registration No. 48,317
Sean M. McGinn, Esq.
Registration No. 34,386

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on

(Date)

Signature of Person Mailing Correspondence

Typed or Printed Name of Person Mailing Correspondence

cc:

Appellants' Brief on Appeal
U.S. Application Serial No. 10/796,301
(NGB.376)



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of

Jun HAMAKITA et al.

Serial No.: 10/796,301

Group Art Unit: 3611

Filed: March 10, 2004

Examiner: Marc A. Scharich

For: ELECTRIC POWER STEERING DEVICE

APPELLANTS' BRIEF ON APPEAL

Honorable Commissioner of Patents
Alexandria, Virginia 22313-1450
Box AF

Sir:

Appellants respectfully appeal the final rejection of claims 1-5, 10-12, 14, and 16 in the Final Office Action dated March 18, 2008. Appellants timely filed a Notice of Appeal on August 18, 2008, with a Petition for an Extension of Time and a corresponding extension of time fee.

I. REAL PARTY IN INTEREST

The real party in interest is JTEKT Corporation, assignee of 100% interest of the above-referenced patent application.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, Appellants' legal representative, or Assignee, which would directly affect, be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-5, 10-12, 14, and 16, all of the currently pending claims in the Application, are set forth fully in the attached Appendix.

Appellants previously canceled claims 6-9, 13, and 15. Accordingly, these claims are not included in the attached Appendix.

Claims 1-5, 10, 12, 14, and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Eda, et al. (U.S. Patent No. 5,482,127; hereinafter "Eda") in view of Lewis (U.S. Patent No. 3,234,758).

Claim 11 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Eda, in view of Lewis, and further in view of Kobayashi, et al. (U.S. Patent No. 6,900,564; hereinafter "Kobayashi").

Appellants respectfully appeal the rejections of claims 1-5, 10, 12, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Eda in view of Lewis and the rejection of claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Eda in view of Lewis and Kobayashi, which are the sole issues in this Appeal.

IV. STATUS OF AMENDMENTS

Appellants filed a Preliminary Amendment under 37 C.F.R. § 1.115 on February 25, 2008.

Appellants filed a Request for Reconsideration under 37 C.F.R. § 1.116 and a Declaration under 37 C.F.R. § 1.132 on July 17, 2008.

In the Advisory Action dated July 31, 2008, however, the Examiner indicated that the Declaration filed on July 17, 2008 would not be entered on Appeal.

Therefore, the claims in the Appendix reflect the version of the claims in the Preliminary Amendment under 37 C.F.R. § 1.115 submitted on February 25, 2008.

A Notice of Appeal was timely filed on August 18, 2008, with a Petition for an Extension of Time and corresponding extension of time fee.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The claimed invention of exemplary claim 1 (and similarly claims 12 and 14) is directed to an electric power steering device including a grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40°C), a worked penetration of the grease being not more than 300, and which is charged in a gap between the spline shaft and the cylindrical body, wherein the electric power steering device is devoid of an O-ring between the spline shaft and the cylindrical body (e.g., see Application at page 3, line 20 through page 4, line 5).

The non-obvious and unique combination of features provides an electric power steering device where the O-ring is omitted, so that the productivity can be enhanced, while

maintaining an excellent high temperature working property and preventing gear noise (see Application at page 3, lines 11-18).

Appellants submit that any references to figure numbers, reference numbers, page/line numbers, etc., are merely provided for the aid of the Board and for satisfying the requirements of 37 C.F.R. § 41.37, and are not meant to limit the scope of the claimed invention in any manner.

INDEPENDENT CLAIM 1

Referring to the exemplary embodiments of the invention depicted in, for example, Figures 1-3, an electric power steering device for transmitting a rotation of a motor for assisting operation of steering, which is reduced via a reduction gear to a steering mechanism (e.g., see Application at Figures 1-3) includes a spline shaft (e.g., 331; see Application at Figure 3 and page 6, lines 25-26) and a cylindrical body (e.g., 332; see Application at Figure 3 and page 7, lines 1-8) that is connected to a rotary shaft of said motor, said spline shaft and said cylindrical body being jointed to each other for transmitting the rotation of the motor to the reduction gear (e.g., see Application at page 6, line 25 through page 7, line 8), and a grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40°C), a worked penetration of said grease being not more than 300, and which is charged in a gap between said spline shaft and said cylindrical body (e.g., see Application at page 13, line 5 through page 14, line 17), wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body (e.g., see Application at Figures 1-3 and page 7, lines 10-16).

INDEPENDENT CLAIM 12

Referring again to the exemplary embodiments of the invention depicted in, for example, Figures 1-3, an electric power steering device for transmitting a rotation of a motor for assisting operation of steering which is reduced via a reduction gear to a steering mechanism (e.g., see Application at Figures 1-3) includes a spline shaft (e.g., 331; see Application at Figure 3 and page 6, lines 25-26) and a cylindrical body (e.g., 332; see Application at Figure 3 and page 7, lines 1-8) that is connected to a rotary shaft of said motor, said spline shaft and said cylindrical body being jointed to each other for transmitting the rotation of the motor to the reduction gear (e.g., see Application at page 6, line 25 through page 7, line 8), and a grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40°C), which is charged in a gap between said spline shaft and said cylindrical body (e.g., see Application at page 13, line 5 through page 14, line 17), wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body (e.g., see Application at Figures 1-3 and page 7, lines 10-16).

INDEPENDENT CLAIM 14

Referring again to the exemplary embodiments of the invention depicted in, for example, Figures 1-3, an electric power steering device for transmitting a rotation of a motor for assisting operation of steering which is reduced via a reduction gear to a steering mechanism (e.g., see Application at Figures 1-3) includes a spline shaft (e.g., 331; see Application at Figure 3 and page 6, lines 25-26) and a cylindrical body (e.g., 332; see

Application at Figure 3 and page 7, lines 1-8) that is connected to a rotary shaft of said motor, said spline shaft and said cylindrical body being jointed to each other for transmitting the rotation of the motor to the reduction gear (e.g., see Application at page 6, line 25 through page 7, line 8), and a grease having a worked penetration of which is not more than 300, and which is charged in a gap between said spline shaft and said cylindrical body (e.g., see Application at page 13, line 5 through page 14, line 17), wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body(e.g., see Application at Figures 1-3 and page 7, lines 10-16).

As mentioned above, the non-obvious and unique combination of features of the claimed invention (as described in any of at least claims 1, 12, and 14) provides a foldable electronic device wherein the display and the interface are sufficiently spaced apart to avoid interference with each other while continuing to enable a user to sufficiently compress operation keys to operate the electronic device (see Application at page 4, lines 6-10).

Each of the features recited in dependent claims 2-5, 10, 11, and 16 are described in detail in the Specification (e.g., see pages 5-14) and Figures 1-3 of the Application.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for review by the Board of Patent Appeals and Interferences are whether independent claims 1, 12, and 14, and dependent 2-5, 10, and 16 are unpatentable under 35 U.S.C. § 103(a) as being obvious in view of Eda in view of Lewis, and whether

claim 11 is unpatentable under 35 U.S.C. § 103(a) as being obvious in view of Eda in view of Lewis and Kobayashi.

VII. ARGUMENT

A. THE EXAMINER'S POSITION

In the Final Office Action mailed March 18, 2008, the Examiner rejected claims 1-5, 12, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Eda in view of Lewis and claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Eda in view of Lewis and Kobayashi.

The Examiner conceded that Eda,

“fails to disclose or suggest a motivation for: charging grease in a gap between the male splined portion of the first transmission shaft and the female splined portion of the cylindrical body; the grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40°C), and a worked penetration of the grease being not more than 300; or the kinetic viscosity of the base oil being not more than 2500 mm²/s; or the kinetic viscosity of the base oil being not less than 1500 mm²/s; or the worked penetration of the grease being not more than 260; the worked penetration of the grease being not less than 200 or the worked penetration of the grease being between 200 and 260.” (See Office Action dated March 18, 2008 at page 3).

The Examiner, however, alleges,

“[i]t has been well-known in the art for many years, however, that various compositions of lubricants may be included (“charged”) between male and female spline engagements that rotate and endure load (torque). For instance, Lewis discloses a drive shaft slip...Further, Lewis discloses that lubricants, such as grease or oil, may be employed between male and female spline portions (i.e. col. 2, lines 27-29). It is also known, and as Lewis discloses, that higher viscosity lubricants, such as heavy oils and greases, have customarily been employed to lubricate highly loaded contacting surfaces (col. 1, lines 28-30) (such as between the male and female splines of the disclose invention of Lewis) for obvious reasons

such as helping to relieve friction in high loaded (torque) conditions to prevent wear and friction in jointed assemblies with slip splines. Although Lewis does not specifically disclose or mention specific greases having kinematic viscosities or worked penetrations within the claimed values of the present application, it is well-known and obvious that greases with various physical properties are on the market and may be optimally selected and used (i.e. based on testing or other experimentation) in such a manner as to be optimal for the intended application. Basically, kinematic viscosities or worked penetrations are merely tested physical properties (i.e. per ASTM-D445 standards) of lubricants, NOT part of an actual chemical composition, and it is well-known and obvious to select and try optimal greases with appropriate physical properties to optimize a function on a particular mechanical application." (See Office Action dated March 18, 2008 at pages 3-4; Examiner's emphasis).

Finally, the Examiner alleges,

"it would have been blatantly obvious to one having ordinary skill in the art at the time of the invention to include or "charge" grease in a gap between the male splined portion of the first transmission shaft and the female splined portion on the cylindrical body on Eda et al.'s invention (for the benefits discussed above) with an available grease on the market that exhibits such known physical properties of kinematic viscosity and worked penetration in the ranges as claimed by the present application in order to reduce wear or friction in the rotating spline joint." (See Office Action dated March 18, 2008 at pages 3-4).

B. APPELLANTS' POSITION

To summarize, Appellants submit that the Examiner's position is flawed as a matter of fact and law. Thus, claims 1-5, 12, 14, and 16 are not unpatentable over Eda in view of Lewis and claim 11 is not unpatentable over Eda in view of Lewis and Kobayashi.

i) **Independent claims 1, 12, and 14 (as well as claims 2-5 and 16, which depend therefrom) are not unpatentable over Eda in view of Lewis under 35 U.S.C. § 103(a).**

1. INDEPENDENT CLAIMS 1, 12, and 14

The Examiner alleges that one of ordinary skill in the art would have combined Eda with Lewis to teach the claimed invention of claims 1-5, 10, 12, 14, and 16. Appellants submit, however, that these references, even if combined, would not teach or suggest each and every feature of the claimed invention.

Appellants submit that the alleged combination of Eda and Lewis fails to teach or suggest an electric power steering device including “*a grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40 °C), a worked penetration of said grease being not more than 300, and which is charged in a gap between said spline shaft and said cylindrical body, wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body*”, as recited in claim 1, and similarly recited in claims 12 and 14. Eda and Lewis do not even mention a kinetic viscosity of a grease, let alone teach or suggest the specific limitations of the claimed invention.

Indeed, the Examiner does not even allege that Eda nor Lewis (nor any combination thereof) teaches or suggests these features of the claimed invention. As pointed out above, the Examiner concedes the alleged combination of Eda and Lewis does not specifically disclose or mention specific greases with kinematic viscosities or worked penetrations within the claimed values of the present application (see Office Action dated March 18, 2008 at pages 2-4).

The Examiner, however, alleges that these features of the claimed invention are “well-known”.

Accordingly, the Examiner has invoked official notice for claim 1 (and similarly claims 12, 14, and 16), because the Examiner has not provided any teaching in Eda nor Lewis (nor anywhere else for that matter) to support his allegation. Appellants submit that the Examiner has inappropriately invoked official notice in the rejection of claim 1.

According to MPEP §2144.03, official notice that is unsupported by documentary evidence should only be taken by the Examiner where the facts asserted to be well-known are **capable of instant and unquestionable demonstration as being well-known**. Furthermore, general conclusions concerning what is “basic knowledge” or “common sense” to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support those findings will not support an obviousness rejection (See MPEP §2144.03). Finally, if official notice is taken, the basis for such reasoning **must** be set forth explicitly. The Examiner **must** provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge (See MPEP §2144.03). In the present Office Action, the Examiner does **not** supply any specific factual findings or concrete evidence to support his obviousness rejections based on official notice.

Furthermore, the Examiner cannot merely allege that features recited in a claim are “well known in the art”, but instead must consider whether the feature is “capable of **instant and unquestionable** demonstration as being well-known”. For example, it may be proper

for an Examiner to allege it is well-known that the boiling point of water is 100°C, or that Force=mass x acceleration.

The features recited in the claimed invention, however, are not well known like, for example, the boiling point of water.

Appellants respectfully submit that the alleged facts of which the Examiner alleges are well-known are not capable of instant and unquestionable demonstration as being well-known. Indeed, Appellants would point out if the Examiner could merely dismiss the patentability of these features as being “well-known”, the Examiner could do so for about 90% of all claimed subject matter.

Therefore, it is clearly not appropriate for the Examiner to dismiss the features recited in the claimed invention as being merely “well-known” features.

Moreover, Appellants submit that the features recited in the claimed invention amount to more than a mere design choice.

Indeed, as pointed out in the Specification (e.g., see pages 1-3), conventional techniques use greases having either low viscosities (e.g., 100 to 300 mm²/s) or high viscosities (e.g., 10,000 to 30,000 mm²/s). When a grease having a low viscosity is used gear noise is generated in the engagement portion. When a grease having a high viscosity is used, it is difficult to insert and engage the male engagement member with the female engagement member.

According to the claimed invention, a grease having an intermediate viscosity (e.g., 1000 to 5000 mm²/s) is used. Use of the claimed intermediate viscosity alleviates the above problems (e.g., see Application at page 13, line 15 through page 14, line 2).

Therefore, the features recited in claim 1 are clearly important and are more than a mere design choice. Therefore, it is clearly erroneous for the Examiner to dismiss these features as "well known" without providing any support for his allegations.

Furthermore, this feature is clearly not taught or suggested by Lewis, which (as pointed out by the Examiner) teaches the use of a high viscosity grease.

Appellants submit that both of the conventional greases have completely different values of kinetic viscosity from that of the grease of the claimed invention (e.g., 1000 to 5000 mm²/s (40°C)).

That is, the conventional methods had no idea about using a grease having an intermediate level kinetic viscosity. In stark contrast, the inventors of the claimed invention discovered that one can reduce gear noise by using the grease having the middle level kinetic viscosity. Furthermore, by setting a worked penetration of the grease to no more than 300, deterioration of assembling work is suppressed, and it is possible to provide a device that is devoid of an O-ring.

Therefore, Applicants submit that neither Eda nor Lewis (nor any combination thereof) teaches or suggest the above features of the claimed invention. Furthermore, Appellants submit that the Examiner has failed to establish a *prima facie* case of obviousness because the Examiner has not provided any support for his erroneous allegations that the above features of the claimed invention are "well-known".

Therefore, Appellants submit that these references, even if combined, would not teach or suggest each and every feature of the claimed invention.

Accordingly, Appellants respectfully submit that the Examiner's position is clearly unreasonable.

2. DEPENDENT CLAIM 2-5 and 16

Claim 2 depends from claim 1 and recites, "*wherein the kinetic viscosity of the base oil is not less than 1500 mm²/s*". The alleged combination of Eda and Lewis does not teach or suggest this feature of the claimed invention. Indeed, as detailed above, neither Eda nor Lewis teaches or suggests the specific properties recited in the claims.

Therefore, dependent claim 2, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Claim 3 depends from claim 1 and recites, "*wherein the kinetic viscosity of the base oil is not more than 2500 mm²/s*". The alleged combination of Eda and Lewis does not teach or suggest this feature of the claimed invention. Indeed, as detailed above, neither Eda nor Lewis teaches or suggests the specific properties recited in the claims.

Therefore, dependent claim 3, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Claim 4 depends from claim 1 and recites, "*wherein the worked penetration of the grease is not more than 260*". The alleged combination of Eda and Lewis does not teach or suggest this feature of the claimed invention. Indeed, as detailed above, neither Eda nor Lewis teaches or suggests the specific properties recited in the claims.

Therefore, dependent claim 4, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Claim 5 depends from claim 1 and recites, "*wherein the worked penetration of the grease is not less than 200*". The alleged combination of Eda and Lewis does not teach or suggest this feature of the claimed invention. Indeed, as detailed above, neither Eda nor Lewis teaches or suggests the specific properties recited in the claims.

Therefore, dependent claim 5, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Claim 10 depends from claim 1 and recites, "*a speed reduction mechanism, comprising: a shaft; and a wheel, wherein said shaft of said speed reduction mechanism is connected to said rotary shaft of said motor by a joint, said joint comprising said spline shaft and said cylindrical body.*" The alleged combination of Eda and Lewis does not teach or suggest this feature of the claimed invention.

Therefore, dependent claim 10, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Claim 16 depends from claim 1 and recites, "*wherein the worked penetration of the grease is between 200 and 260*". The alleged combination of Eda and Lewis does not teach or suggest this feature of the claimed invention. Indeed, as detailed above, neither Eda nor Lewis teaches or suggests the specific properties recited in the claims.

Therefore, dependent claim 16, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Therefore, Appellants respectfully submit that the Examiners' position is clearly unreasonable.

ii) Dependent claim 11 is not unpatentable over Eda in view of Lewis and Kobayashi under 35 U.S.C. § 103(a).

The Examiner alleges that one of ordinary skill in the art would have combined Kobayashi with Eda and Lewis to teach the claimed invention of claim 11. Appellants submit that claim 11 is patentable for similar reasons to those set forth above with respect to claims 1-5, 10, 12, 14, and 16.

Moreover, claim 11 depends from claim 1 and recites, "*wherein said wheel comprises a synthetic resin member comprising at least one of polyacetal terephthalate and polybutylene terephthalate*". The alleged combination of Eda, Lewis, and Kobayashi does not teach or suggest this feature of the claimed invention.

Therefore, dependent claim 11, like independent claim 1, includes at least one element, which is not taught or suggested by the cited prior art references, nor any combination of the cited references.

Therefore, Appellants respectfully submit that the Examiners' position is clearly unreasonable.

Appellants' Brief on Appeal
U.S. Application Serial No. 10/796,301
(NGB.376)

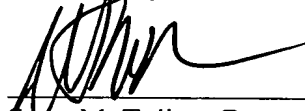
VIII. CONCLUSION

In view of the foregoing, Appellants submit that claims 1-5, 10-12, 14, and 16, all of the claims presently pending in the application, are patentably distinct from the prior art of record and in condition for allowance. Thus, Appellants respectfully request the Board to remove the rejections of claims 1-5, 10-12, 14, and 16.

Please charge any deficiencies and/or credit any overpayments necessary to enter this paper to Attorney's Deposit Account number 50-0481.

Date: October 20, 2018

Respectfully Submitted,



Scott M. Tulino, Esq.
Registration No. 48,317

Sean M. McGinn, Esq.
Registration No. 34,386

**MCGINN INTELLECTUAL PROPERTY
LAW GROUP, PLLC**
8321 Old Courthouse Road
Vienna, Virginia 22182-3817
(703) 761-4100
Customer No. 21254

CLAIMS APPENDIX

1. An electric power steering device for transmitting a rotation of a motor for assisting operation of steering which is reduced via a reduction gear to a steering mechanism, the electric power steering device comprising:

a spline shaft and a cylindrical body that is connected to a rotary shaft of said motor, said spline shaft and said cylindrical body being jointed to each other for transmitting the rotation of the motor to the reduction gear; and

a grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40°C), a worked penetration of said grease being not more than 300, and which is charged in a gap between said spline shaft and said cylindrical body,

wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body.

2. The electric power steering device according to claim 1, wherein the kinetic viscosity of the base oil is not less than 1500 mm²/s.

3. The electric power steering device according to claim 1, wherein the kinetic viscosity of the base oil is not more than 2500 mm²/s.

4. The electric power steering device according to claim 1, wherein the worked penetration of the grease is not more than 260.

5. The electric power steering device according to claim 1, wherein the worked penetration of the grease is not less than 200.

10. The electric power steering device according to claim 1, further comprising:
a speed reduction mechanism, comprising:

a shaft; and

a wheel,

wherein said shaft of said speed reduction mechanism is connected to said rotary shaft of said motor by a joint, said joint comprising said spline shaft and said cylindrical body.

11. The electric power steering device according to claim 10, wherein said wheel comprises a synthetic resin member comprising at least one of polyacetal terephthalate and polybutylene terephthalate.

12. An electric power steering device for transmitting a rotation of a motor for assisting operation of steering which is reduced via a reduction gear to a steering mechanism, the electric power steering device comprising:

a spline shaft and a cylindrical body that is connected to a rotary shaft of said motor, said spline shaft and said cylindrical body being jointed to each other for transmitting the rotation of the motor to the reduction gear; and

a grease including a base oil having a kinetic viscosity of 1000 to 5000 mm²/s (40°C), which is charged in a gap between said spline shaft and said cylindrical body,

wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body.

14. An electric power steering device for transmitting a rotation of a motor for assisting operation of steering which is reduced via a reduction gear to a steering mechanism, the electric power steering device comprising:

a spline shaft and a cylindrical body that is connected to a rotary shaft of said motor, said spline shaft and said cylindrical body being jointed to each other for transmitting the rotation of the motor to the reduction gear; and

a grease having a worked penetration of which is not more than 300, and which is charged in a gap between said spline shaft and said cylindrical body,

wherein the electric power steering device is devoid of an O-ring between said spline shaft and said cylindrical body.

16. The electric power steering device according to claim 1, wherein the worked penetration of the grease is between 200 and 260.

Appellants' Brief on Appeal
U.S. Application Serial No. 10/796,301
(NGB.376)

EVIDENCE APPENDIX

Not applicable.

Appellants' Brief on Appeal
U.S. Application Serial No. 10/796,301
(NGB.376)

RELATED PROCEEDINGS APPENDIX

Not applicable.